

WHAT IS CLAIMED IS:

1. An apparatus for calculating a color temperature, comprising:

a color temperature selecting portion for selecting a left color temperature and a right color temperature that are most adjacent to a one-dimensional chroma inputted from a mapping table, the table mapping a chroma to a color temperature;

a distance calculating portion for calculating distances between the selected left color temperature and the inputted one-dimensional chroma, and between the selected right color temperature and the inputted one-dimensional chroma, respectively; and

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio of the calculated distances.

2. The apparatus for calculating the color temperature of claim 1, wherein the one-dimensional chroma is one coordinate of CIE XYZ coordinates.

3. An apparatus for calculating a color temperature, comprising:

a chroma selecting portion for selecting a left and a right chroma that are most adjacent to a one-dimensional chroma inputted from a mapping table, the table mapping a chroma to a color temperature;

a distance calculating portion for calculating distances between the selected left chroma and the inputted one-dimensional chroma, and between the

selected right chroma and the inputted one-dimensional chroma, respectively; and

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio

10 of the calculated distances.

4. A color display system, comprising:

a table mapping a chroma to a color temperature;

a chroma detecting portion for detecting the chroma from inputted image data and outputting the detected chroma at a one-dimensional level;

5 a color temperature selecting portion for selecting from the table left and right color temperature/chroma that are most adjacent to the one-dimensional chroma;

a distance calculating portion for calculating distances between the selected left color temperature/chroma and the one-dimensional chroma, and
10 between the selected right color temperature/chroma and the one-dimensional chroma;

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma in accordance with a ratio of the calculated distances;

15 a color temperature converting portion for converting the chroma of the inputted image data into the calculated color temperature; and

a display portion for displaying an image having the converted color temperature.

5. A method for calculating a color temperature, comprising the steps
of:

- a) inputting one-dimensional chroma;
- b) selecting left and right color temperatures that are most adjacent to the
5 one-dimensional chroma inputted from a chroma-color temperature
mapping table;
- c) calculating distances between the selected left color temperature and
the inputted one-dimensional chroma, and between the selected right
color temperature and the inputted one-dimensional chroma; and
- 10 d) calculating a color temperature corresponding to the one-dimensional
chroma inputted in accordance with a ratio of the calculated distances.

6. The method for calculating the color temperature of claim 5,
wherein the step d) comprises the sub-steps of:

- d1) calculating a rate-of-change of the color temperature from the left and
right color temperatures selected in accordance with the ratio of the
5 calculated distances to the inputted one-dimensional chroma; and
- d2) calculating a final output color temperature corresponding to the
inputted one-dimensional chroma by adding/subtracting the calculated
rate-of-change of the temperature to/from the selected left and right color
temperature.